

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of the Claims

1-19. (Cancelled)

20. (Currently Amended) A method of eliminating packet loss at ~~reducing contention~~
~~for a packet-switching device~~ Local Area Network (LAN) switch, comprising the steps of:

(1) collecting in a first single device a plurality of different data signals ~~including~~
~~at least voice data and video data;~~

(2) converting each of the plurality of different data signals into digital form;

(3) transmitting the data signals in digital form from step (2) over a backplane bus
to a CPU of the first in the single device;

(4) in the CPU of the first device, converting the digital data into network packets
destined for delivery to the packet-switching device ~~over the LAN switch~~; and

(5) in the CPU of the first device, scheduling the transmission of the network
packets to the packet-switching device in such a way as to eliminate packet loss in the
packet-switching device ~~avoid contention for the LAN switch~~ that would otherwise occur
if the network packets had been processed by separate devices coupled to the ~~LAN switch~~
packet-switching device, wherein packet loss is eliminated without the need for
retransmission to the packet-switching device by coordinating the transmission from the
first device to avoid contention among transmitters for the packet-switching device. in
such a way as to eliminate queue overflow in the packet-switching device.

21. (Previously Presented) The method of claim 20, wherein the scheduling step comprises:

from a transmitting node, transmitting a proposed delivery schedule to an intended receiving node, wherein the proposed delivery schedule indicates time slots corresponding to times during which the transmitting node proposes to transmit packets to the intended receiving node;

receiving from the intended receiving node an indication as to whether the proposed delivery schedule is acceptable to the intended receiving node; and

if the proposed delivery schedule is acceptable, transmitting packets to the intended receiving node according to the proposed delivery schedule.

22. (Previously Presented) The method of claim 20, wherein the scheduling step comprises:

from a transmitting node, transmitting a query to an intended receiving node;

receiving from the intended receiving node a reception map indicating time slots during which transmission to the intended receiving node would not conflict with other transmitters;

from the transmitting node, transmitting a proposed transmission map indicating time slots, compatible with the reception map, during which the transmitting node intends to transmit packets; and

from the transmitting node, transmitting packets to the intended receiving node according to the proposed transmission map.

23. (Previously Presented) The method of claim 20, wherein the scheduling step comprises:

from a transmitting node, transmitting a bandwidth requirement to an intended receiving node;

receiving from the intended receiving node a transmission map indicating time slots during which transmission to the intended receiving node would not conflict with other transmitters; and

from the transmitting node, transmitting packets to the intended receiving node according to the transmission map.

24. (Previously Presented) The method of claim 20, wherein the scheduling step comprises:

from a transmitting node, transmitting a query to a designated master node for a LAN-wide transmission map;

receiving from the master node a LAN-wide transmission map indicating time slots during which transmission to an intended receiving node would not conflict with other transmitters;

transmitting to the master node a proposed transmission map compatible with the LAN-wide transmission map, said proposed transmission map indicating time slots during which the transmitting node intends to transmit packets to the intended receiving node; and

from the transmitting node, transmitting packets to the intended receiving node according to the proposed transmission map.

25. (Cancelled)

26. (Currently Amended) The method of claim 20, wherein the packet-switching device ~~LAN switch~~ is an Ethernet LAN switch.

27. (Previously Presented) The method of claim 26, wherein the Ethernet LAN switch is coupled to a Wide Area Network (WAN) router.

28. (Currently Amended) The method of claim 20, wherein the plurality of different data signals originate from a plurality of local transmitters connected to the first ~~single~~ device.

29. (Currently Amended) A device configured to eliminate packet loss at ~~reduce contention for a~~ packet-switching device ~~LAN switch~~, the device comprising:

a CPU;

a backplane bus;

an internal timing system capable of synchronizing with one or more external time sources;

a plurality of modules coupled to the backplane bus, where each module is configured to receive data of a different type and present the received data to the CPU over the backplane bus; and

a packet network interface connectable to a packet-switching device ~~Local Area Network (LAN) switch~~,

wherein the device is configured to perform the steps of:

(1) collecting a plurality of different data signals from the plurality of modules;

(2) converting each of the plurality of different data signals into digital form;

(3) transmitting the data signals in digital form from step (2) over the backplane bus to the CPU;

(4) in the CPU, converting the digital data into network packets destined for delivery to ~~over the packet-switching device~~ LAN switch; and

(5) in the CPU, scheduling transmission of the network packets to ~~over the packet-switching device~~ LAN switch in such a way as to eliminate packet loss in the packet-switching device ~~avoid contention for the LAN switch~~ that would otherwise occur if the network packets had been processed by separate devices coupled to the ~~LAN switch~~ packet-switching device, wherein packet loss is eliminated without the need for retransmission to the packet-switching device by coordinating the transmission of network packets to avoid contention among transmitters for the packet-switching device, in such a way as to eliminate queue overflow in the packet-switching device.

30. (Previously Presented) The device of claim 29, wherein the scheduling step comprises:

transmitting a proposed delivery schedule to an intended receiving node, wherein the proposed delivery schedule indicates proposed time slots for transmission of packets to the intended receiving node;

receiving from the intended receiving node an indication as to whether the proposed delivery schedule is acceptable to the intended receiving node; and

if the proposed delivery schedule is acceptable, transmitting packets to the intended receiving node according to the proposed delivery schedule.

31. (Previously Presented) The device of claim 29, wherein the scheduling step comprises:

transmitting a query to an intended receiving node;

receiving from the intended receiving node a reception map indicating time slots during which transmission to the intended receiving node would not conflict with other transmitters;

transmitting a proposed transmission map indicating time slots, compatible with the reception map, for transmission of packets to the intended receiving node; and

transmitting packets to the intended receiving node according to the proposed transmission map.

32. (Previously Presented) The device of claim 29, wherein the scheduling step comprises:

transmitting a bandwidth requirement to an intended receiving node;

receiving from the intended receiving node a transmission map indicating time slots during which transmission to the intended receiving node would not conflict with other transmitters; and

transmitting packets to the intended receiving node according to the transmission map.

33. (Previously Presented) The device of claim 29, wherein the scheduling step comprises:

transmitting a query to a designated master node for a LAN-wide transmission map;

receiving from the master node a LAN-wide transmission map indicating time slots during which transmission to an intended receiving node would not conflict with other transmitters;

transmitting to the master node a proposed transmission map compatible with the LAN-wide transmission map, said proposed transmission map indicating time slots during which the device intends to transmit packets to the intended receiving node; and

transmitting packets to the intended receiving node according to the proposed transmission map.

34. (Currently Amended) The device of claim 29, wherein the packet-switching device ~~LAN switch~~ is an Ethernet LAN switch.

35. (Previously Presented) The device of claim 34, wherein the Ethernet LAN switch is coupled to a Wide Area Network (WAN) router.

36. (Previously Presented) The device of claim 29, wherein the plurality of modules comprises a plurality of local transmitters connected to the device.

37. (Currently Amended) A system to eliminate packet loss at a packet-switching device, the system comprising a plurality of devices~~for reducing contention for a Local Area Network (LAN) switch comprising a plurality of devices,~~ each said device comprising:

a CPU;

a backplane bus;

an internal timing system capable of synchronizing with one or more external time sources;

one or more modules coupled to the backplane bus, where each module is configured to receive data and present the received data to the CPU over the backplane bus; and

a packet network interface connectable to a packet-switching device~~Local Area Network (LAN) switch,~~

wherein each said device is configured to perform the steps of:

(1) collecting a plurality of different data signals from the one or more modules;

(2) converting each of the plurality of different data signals into digital form;

(3) transmitting the data signals in digital form from step (2) over the backplane bus to the CPU;

(4) in the CPU, converting the digital data into network packets destined for delivery ~~to over the packet-switching device~~ LAN switch; and

(5) in the CPU, scheduling transmission of the network packets ~~to over the packet-switching device~~ LAN switch in such a way as to eliminate packet loss in the packet-switching device ~~avoid contention for the LAN switch~~ that would otherwise occur if the network packets had been processed by separate devices coupled to the ~~packet-switching device~~ LAN switch, and

wherein each said device is connected to the same ~~packet-switching device~~ LAN switch, and

wherein each said device coordinates with the other devices the scheduling of network packets ~~to over the packet-switching device~~ LAN switch ~~with the other devices~~ so as to eliminate packet loss at the packet-switching device without the need for retransmission to the packet-switching device by avoiding contention among the devices for the packet-switching device, in such a way as to eliminate queue overflow in the packet-switching device ~~avoid contention for the LAN switch~~.

38. (Currently Amended) The system of claim 37, wherein at least one of the plurality of devices schedules packet delivery over a LAN by agreeing upon time slots during which network packets will be transmitted to the ~~packet-switching device~~ LAN switch.

39. (Previously Presented) The system of claim 38, wherein the scheduling of packet delivery over the LAN comprises:

transmitting a proposed delivery schedule to an intended receiving node, wherein the proposed delivery schedule indicates proposed time slots for transmission of packets to the intended receiving node;

receiving from the intended receiving node an indication as to whether the proposed delivery schedule is acceptable to the intended receiving node; and

if the proposed delivery schedule is acceptable, transmitting packets to the intended receiving node according to the proposed delivery schedule.

40. (Previously Presented) The system of claim 38, wherein the scheduling of packet delivery over the LAN comprises:

transmitting a query to an intended receiving node;

receiving from the intended receiving node a reception map indicating time slots during which transmission to the intended receiving node would not conflict with other transmitters;

transmitting a proposed transmission map indicating time slots, compatible with the reception map, for transmission of packets to the intended receiving node; and

transmitting packets to the intended receiving node according to the proposed transmission map.

41. (Previously Presented) The system of claim 38, wherein the scheduling of packet delivery over the LAN comprises:

transmitting a bandwidth requirement to an intended receiving node;

receiving from the intended receiving node a transmission map indicating time slots during which transmission to the intended receiving node would not conflict with other transmitters; and

transmitting packets to the intended receiving node according to the transmission map.

42. (Previously Presented) The system of claim 38, wherein the scheduling of packet delivery over the LAN comprises:

transmitting a query to a designated master node for a LAN-wide transmission map;

receiving from the master node a LAN-wide transmission map indicating time slots during which transmission to an intended receiving node would not conflict with other transmitters;

transmitting to the master node a proposed transmission map compatible with the LAN-wide transmission map, said proposed transmission map indicating time slots during which a transmitting node intends to transmit packets to the intended receiving node; and

transmitting packets to the intended receiving node according to the proposed transmission map.

43. (Currently Amended) The system of claim 37, wherein the packet-switching device ~~LAN switch~~ is an Ethernet LAN switch.

44. (Previously Presented) The system of claim 43, wherein the Ethernet LAN switch is coupled to a Wide Area Network (WAN) router.

45. (New) The system of claim 37, wherein the plurality of devices are synchronized via the internal timing systems of the devices such that only one of the devices at a time transmits packets to the packet-switching device.